

Forest Survey Release No. 26

SOUTHERN FOREST
EXPERIMENT STATION

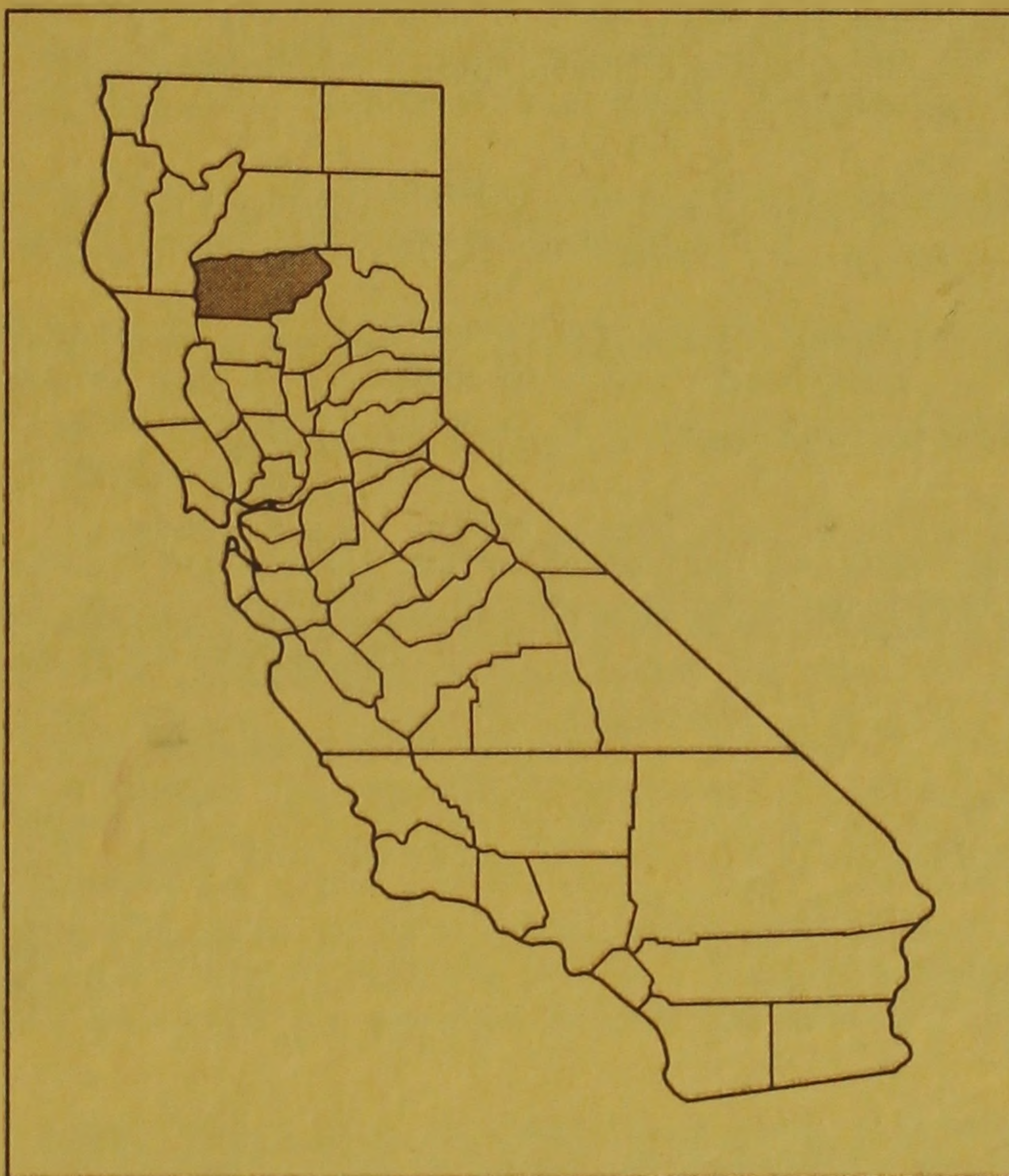
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AREA AND OWNERSHIP OF FOREST LAND : 58

IN TEHAMA COUNTY, CALIFORNIA

HAROLD L. BAKER, Forest Economist
Forest Service

ADON POLI, Agricultural Economist
Agricultural Research Service



U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

George M. Jemison, Director
Berkeley, California

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ACKNOWLEDGMENTS

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The data presented were collected and assembled with the cooperation and assistance of the following agencies and persons.

CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

Survey procedures and supervision of basic data collection:
A. E. Wieslander and G. F. Burks

Photo interpretation: W. L. Colwell, Jr., I. I. Holland,
J. C. Gilman, M. Swensen, K. Schoenlank, and W. P.
Hoffman

Drafting and compilations: R. M. Miller, A. O. Desch,
and A. B. Smith

Statistical analysis: A. A. Hasel and E. M. Hornibrook

Illustrative material: A. Kursinski

Tables and multilith plates: R. F. Perenin

FOREST SERVICE, REGION 5. Fire and cutting records:
Supervisors of the Trinity, Mendocino, and Lassen
National Forests.

CALIFORNIA STATE DIVISION OF FORESTRY. Ownership Survey
questionnaires: State Forester and members of his staff.

TEHAMA COUNTY. Basic ownership data: County Assessor and
Tax Collector.

The ownership data presented in this report were the responsibility of the Production Economics Research Branch, Agricultural Research Service, U. S. Department of Agriculture.

The California Forest and Range Experiment
Station is maintained at Berkeley in cooperation
with the University of California

FOREWORD

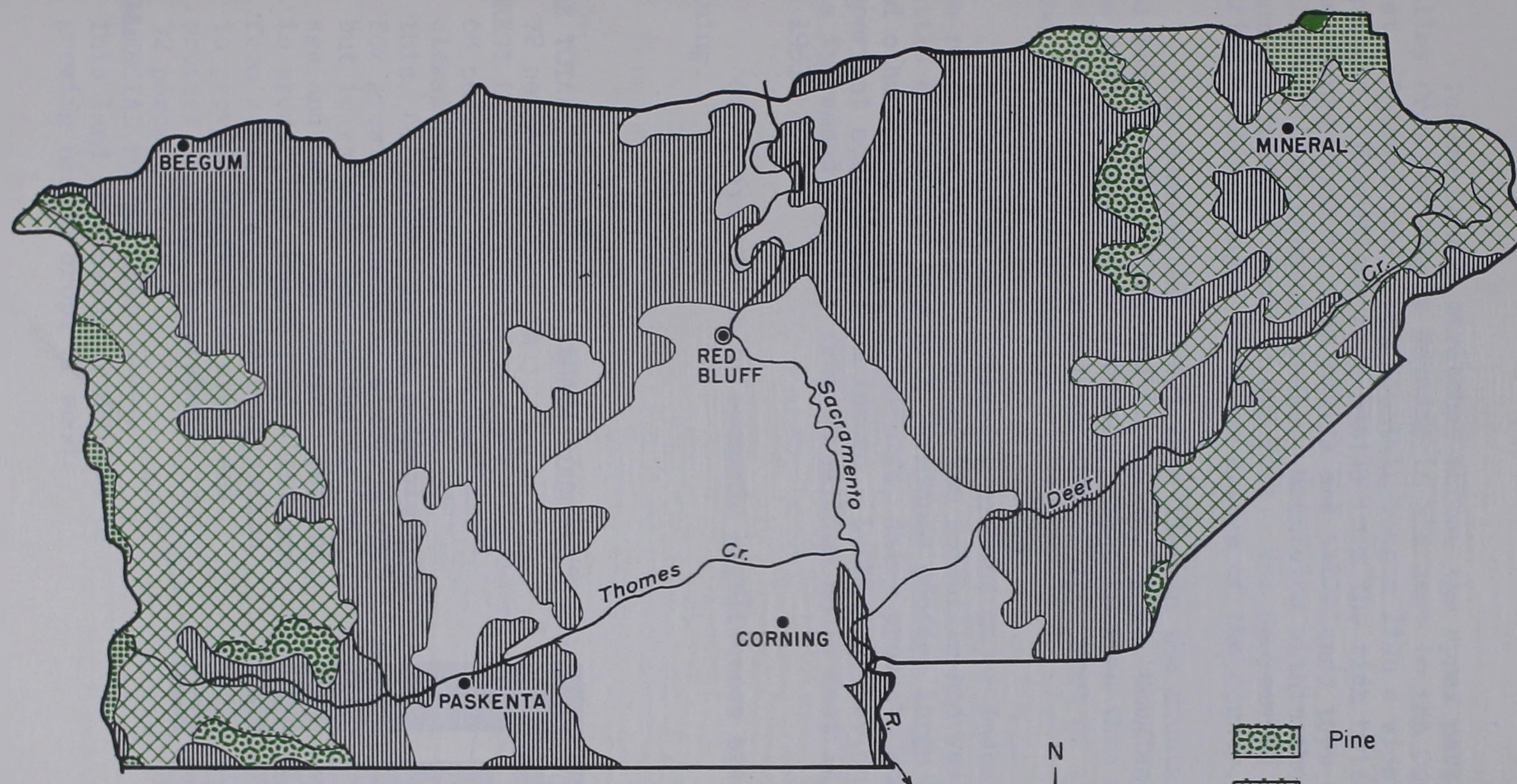
The Forest Survey, authorized by the McSweeney-McNary Act of 1928, is a nationwide activity of the Forest Service designed to provide a comprehensive survey of the forest resource of the United States. The five-fold objective of this Survey is:

- (1) To make an inventory of all forest land and the standing timber on that land.
- (2) To measure the current and probable future rate of timber growth, and the productive capacity of the forest land.
- (3) To determine the rate of timber depletion through cutting, fire, insects, disease, and other causes.
- (4) To determine the present and expected requirements for lumber and other forest products.
- (5) To provide, through correlation of these facts with one another and with other economic knowledge, a basis for formulating local, State, and national forest policies and management plans.

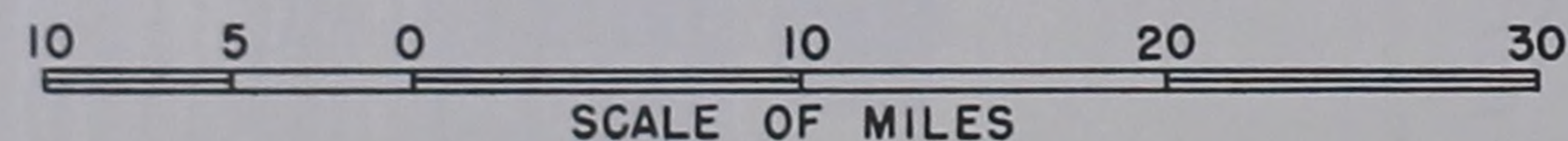
Responsibility for this work in California has been assigned the Division of Forest Economics of the California Forest and Range Experiment Station at Berkeley.

This release presents the statistics of forest area and forest land ownership in Tehama County, California as of 1951. Besides the statistics on the extent, location, and condition of all forest lands and the timber stands on those lands, this report presents quantitative data on type and size of ownership and number and kinds of owners. Estimates of timber volume are not included because volume sampling was not designed to provide this information for single counties.

Similar statistical reports have been issued for the leading timber counties of the Coast Range Pine and Redwood--Douglas-fir Survey units. Also, major statistical reports have been published for these units which present data on forest areas, timber volumes, ownership, growth, and drain.



GENERALIZED TYPES OF TIMBER STANDS TEHAMA COUNTY, CALIFORNIA



-  Pine
-  Pine-Douglas-fir-Fir
-  Fir
-  Lodgepole pine
-  Noncommercial forest
-  Nonforest

FACTS ABOUT TEHAMA COUNTY

Tehama County stretches across the upper part of the Sacramento Valley from the Sierra Nevadas in the east to the Coast Range in the west. Between these two mountain ranges lies a wide belt of productive farmland. Elevations rise gently from the rich bottom land along the Sacramento River to wide plains and tablelands then abruptly to foothills and high mountain peaks. Mountains within the county attain maximum altitudes of about 9,000 feet. The Sacramento River and its tributaries form the major drainage system of the county.

The commercial forest land lies in the mountainous areas east and west of the valley and foothills. Pine, Douglas-fir, and fir are the predominant timber species. Slightly more than half of the commercial forest land is in private ownership. Most of the publicly owned land is in national forests.

Agriculture and lumbering are the major industries of the county. The range and pasture lands of the foothills and valley support numerous cattle and sheep. The rich farmlands produce large quantities of olives and other fruit. Barley, alfalfa, dairy products and poultry are also important sources of farm income. Lumber production in Tehama County has increased steadily from 10 million board feet in 1941 to 61 million in 1951.

Other industries of economic significance are recreation and mining.

THE TOTAL LAND AREA OF TEHAMA COUNTY IS

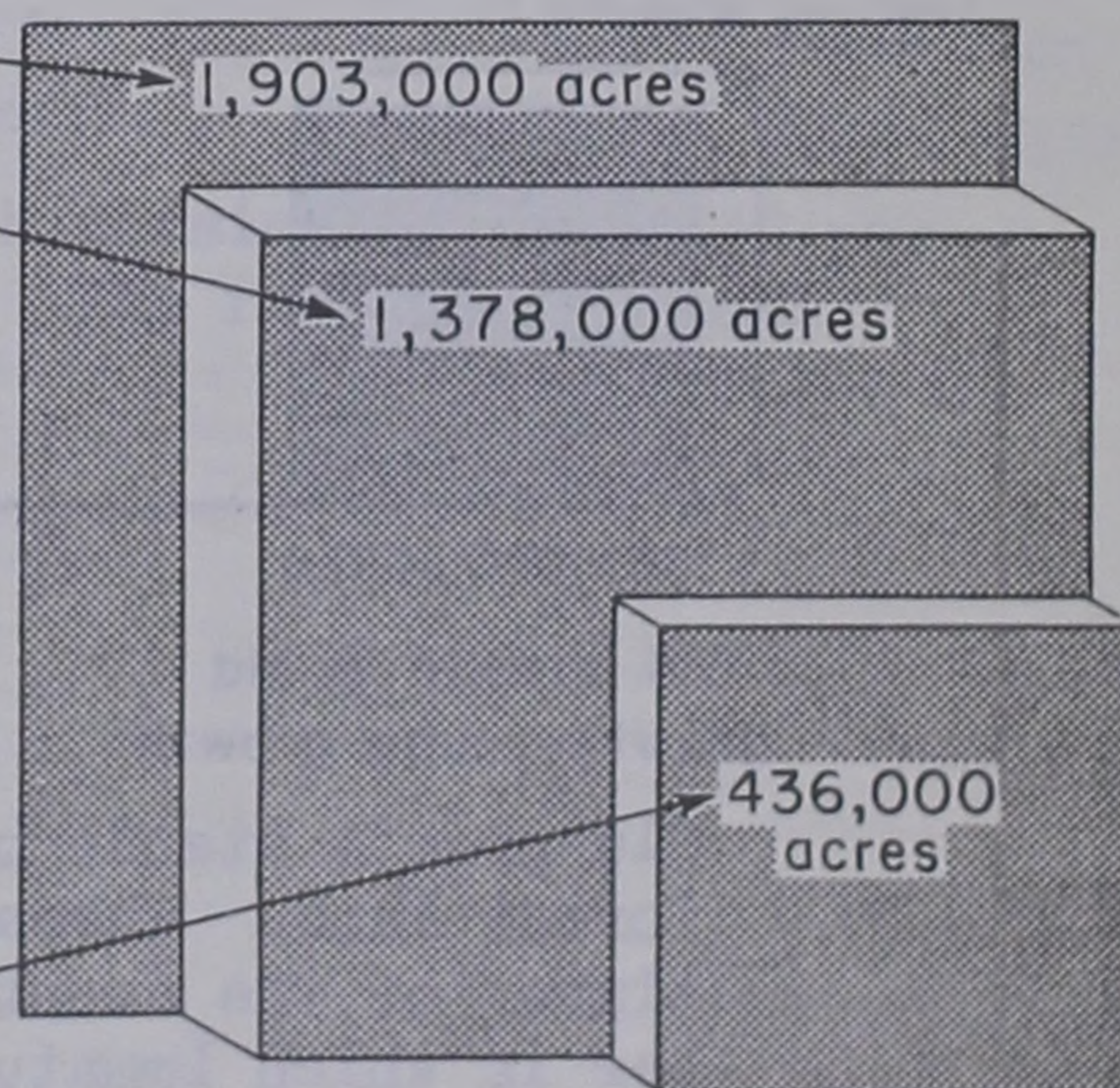
72 percent of this is

FOREST LAND

68 percent of the forest land is classified as noncommercial. Of this, 65 percent is not suitable for growing commercial timber crops but is valuable for producing forage and water. The other 3 percent is productive forest land withdrawn from commercial timber utilization to provide recreation areas and protect critical watersheds. But 32 percent is

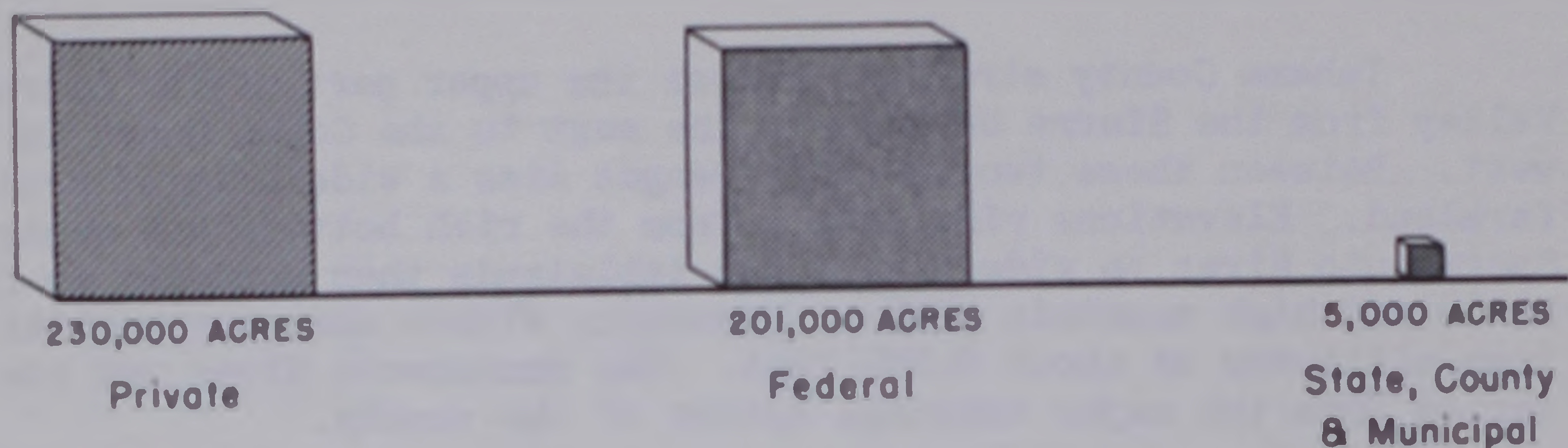
COMMERCIAL FOREST LAND

This land is growing or capable of growing usable crops of wood.



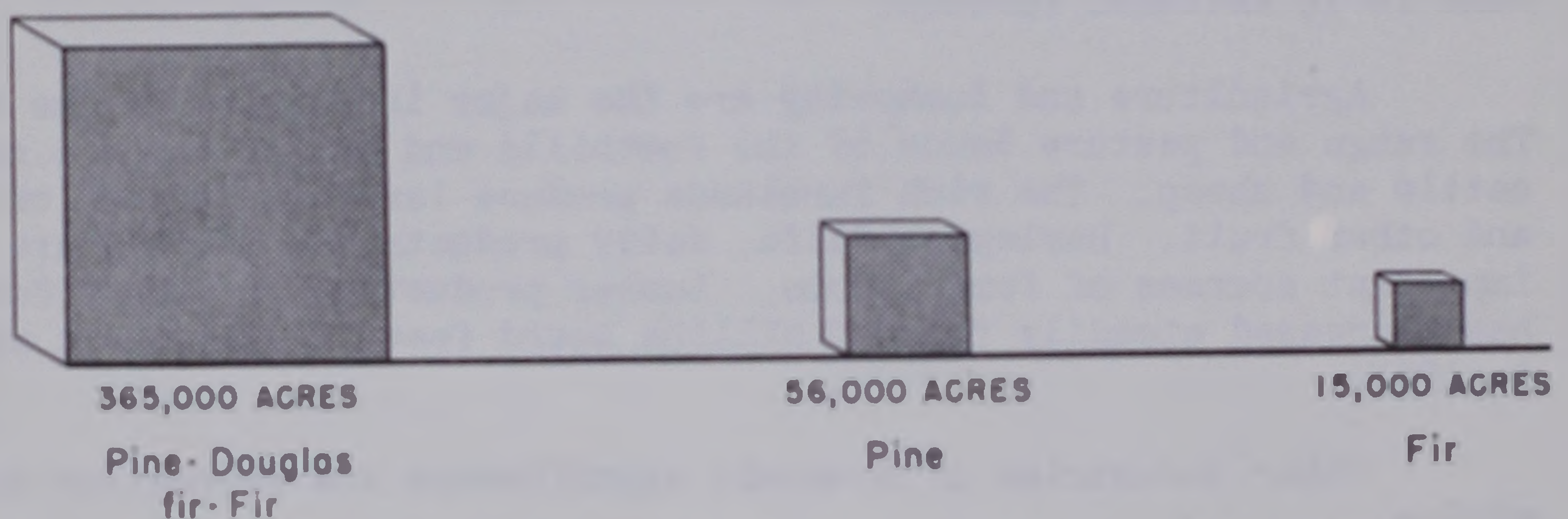
COMMERCIAL FOREST LAND

OWNERSHIP



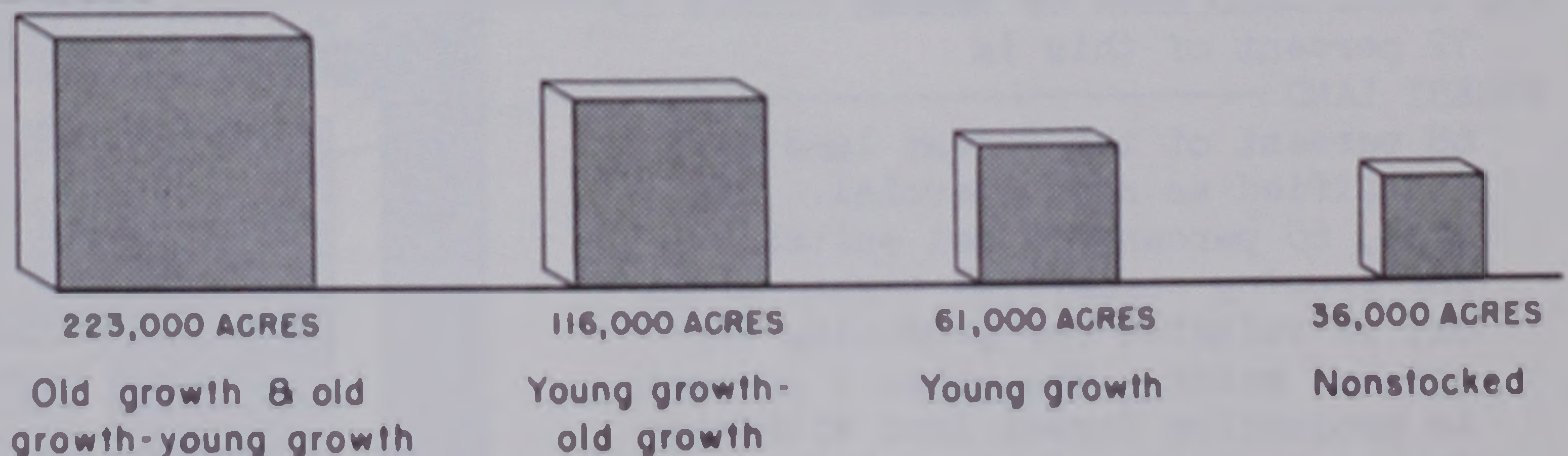
More than half of the commercial forest land is in private ownership. Nearly all the rest is in Federal ownership--principally the Trinity, Mendocino, and Lassen National Forests. (Table 1)

TYPES



Mixed stands of pine, Douglas-fir, and fir occupy more than four-fifths of the commercial forest land. The rest of the timber-producing land is occupied principally by the pine type. (Table 5)

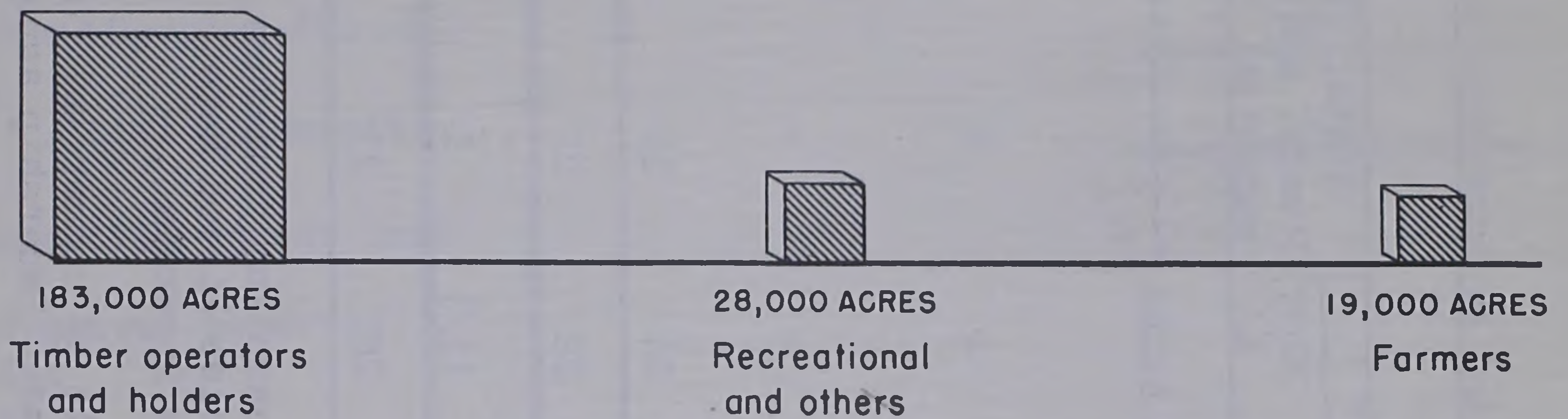
AGE CLASSES



Old-growth stands of timber occupy about half of the commercial forest land. These stands contain most of the merchantable timber of the county. Mixed stands of mature and immature timber in which immature timber predominates cover 27 percent. Fourteen percent of the timber producing land is in young-growth timber stands, and 8 percent is classified as nonstocked. (Table 7)

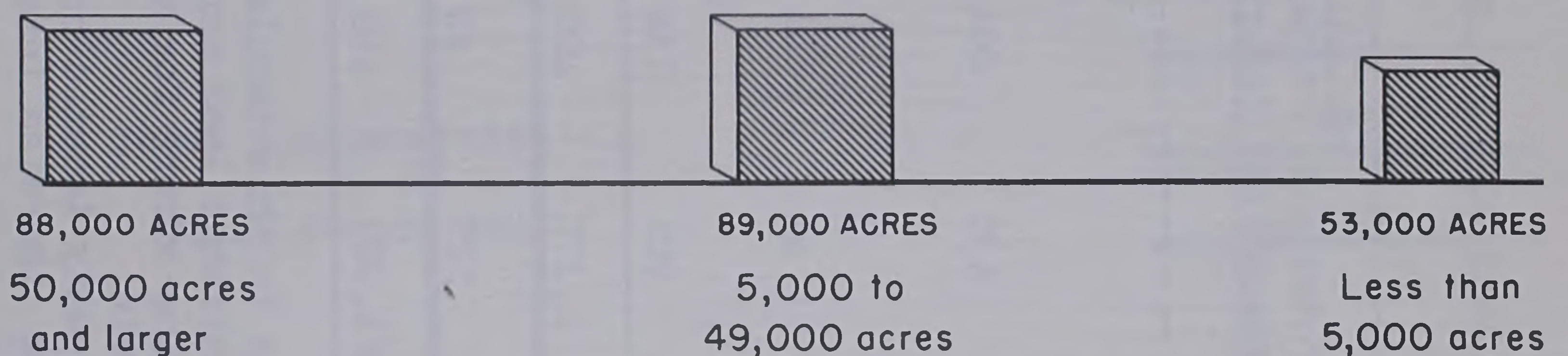
PRIVATELY OWNED COMMERCIAL FOREST LAND

TYPE OF OWNERSHIP



Corporations and persons engaged in logging and milling operations or planning future operations own four-fifths of the privately owned commercial forest land. Owners of recreational, residential, and other similar properties have 12 percent. Ranchers and farmers own 8 percent. (Table 3)

SIZE OF OWNERSHIP



Large and medium-sized holdings each consist of about 40 percent of the commercial forest land. The rest is in small holdings of less than 5,000 acres. (Table 6)

Table 1.- Total land area, by major classes of land and by ownership class, 1951

Class of land	Total all ownerships	Federally owned ^{1/}				State, County, and municipal	Private	Un- classified ^{3/}
		Total federal	National forest	National park	Other ^{2/}			
----- <u>Thousand acres</u> -----								
Forest land								
Commercial	436	201	197	-	4	5	230	-
Noncommercial								
Reserved from commercial timber use	41	41	39	2	-	-	-	-
Unproductive for timber use ^{4/}	901	158	133	1	24	17	199	527
Total forest land	1,378	400	369	3	28	22	429	527
Nonforest land	525	10	9	1	(5/)	1	21	493
All land	6/1,903	410	378	4	28	23	450	1,020

^{1/} Because all figures in this tabulation are derived by sampling procedure, total acreage figures vary somewhat from published land acreages of public agencies listed here. For details on sampling procedures and sampling errors for various area sizes see Appendix.

^{2/} Chiefly public domain.

^{3/} A portion of the county located outside the broad limits of commercial forest land and classified as agricultural and otherwise intensively developed land. Ownership aspects of this area were not considered essential to this study.

^{4/} Includes 17,000 acres withdrawn for special use.

^{5/} Less than 500 acres.

^{6/} From "Areas of the United States 1940," U. S. Bureau of the Census.

Table 2.- Total land area, by cover type and use, 1951

Cover type and use	Area <u>Thousand</u> <u>acres</u>
Commercial forest land	
Pine	56
Fir	15
Pine--Douglas-fir--Fir	365
Total commercial	436
Noncommercial forest land	
Productive--reserved	
Pine	-
Fir	4
Pine--Douglas-fir--Fir	37
Total	41
Unproductive	
Coniferous woodland	41
Hardwood (woodland)	67
Woodland-grass	595
Chaparral	198
Total	901
Total noncommercial	942
Total forest land	1,378
Nonforest land	
Grass	341
Barren	14
Cultivated, urban and industrial	170
Water ^{2/}	(1/)
Total nonforest land	525
All land	1,903

^{1/} Less than 500 acres.

^{2/} Water according to survey standards of area classification but defined by the Bureau of Census as land.

Table 3.- Number of ownerships and area of privately owned land,
by type of ownership, 1951

Type of ownership	Ownerships		Total land area		Commer- cial forest land	Non- commercial forest land	Non- forest land
	No.	Pct.	<u>Thousand acres</u>	Pct.	--- <u>Thousand acres</u> ---		
Timber operating company	7	2.8	139	30.9	130	9	(1/)
Timber holding company	1	0.4	28	6.2	10	18	(1/)
Timber operating individual	3	1.2	41	9.2	39	2	(1/)
Timber holding individual	11	4.3	5	1.1	4	1	-
Range livestock farming company	-	-	-	-	-	-	-
Range livestock farming individual	77	30.3	179	39.8	16	145	18
Other farmers	50	19.7	6	1.3	3	2	1
Recreational property owners	45	17.7	6	1.3	4	1	1
Other classified owners ^{2/}	60	23.6	36	8.0	16	19	1
Unclassified ^{3/}	-	-	10	2.2	8	2	(1/)
All types	254	100.0	450	100.0	230	199	21

1/ Less than 500 acres.

2/ All other land owners whose classification is known but does not logically fit the classes listed above. Examples are owners of land held for residential purposes only, mining claims, and reservoir sites.

3/ Small urban, suburban, and industrial ownerships that are too small to map and classify properly; nonforest ownerships within strictly agricultural communities; and ownerships that for other reasons cannot be classified and placed in appropriate categories.

Table 4.- Number of ownerships and area of privately owned land,
by size of ownership, 1951

Size of ownership	Ownerships		Total land area		Commercial forest land	Non-commercial forest land	Non-forest land
<u>Acres</u>	<u>No.</u>	<u>Pct.</u>	<u>Thousand acres</u>	<u>Pct.</u>	-----	<u>Thousand acres</u>	-----
1- 179	136	53.5	18	4.1	9	8	1
180- 379	21	8.2	6	1.4	5	1	(1/)
380- 699	23	9.1	15	3.4	4	9	2
700- 1,299	15	5.9	16	3.7	2	14	(1/)
1,300- 2,599	23	9.1	40	9.2	13	23	4
2,600- 4,999	17	6.7	59	13.5	10	43	6
5,000- 9,999	10	3.9	44	10.1	13	29	2
10,000-29,999	5	2.0	47	10.8	(1/)	42	5
30,000-49,999	3	1.2	97	22.2	76	21	(1/)
50,000 and over	1	0.4	94	21.6	88	6	(1/)
All classified ownerships	254	100.0	436	100.0	220	196	20
Unclassified	-	-	14	-	10	3	1
Total acreage	-	-	450	-	230	199	21

1/ Less than 500 acres.

Table 5.- Commercial forest land, by type of ownership and by timber type, 1951

Type of ownership	Total		Timber type		
			Pine	Fir	Pine-- Douglas-fir-- Fir
	<u>Thousand acres</u>	<u>Pct.</u>	----- <u>Thousand acres</u> -----		
National Forest	197	45.2	25	14	158
Other Federal	4	0.9	1	-	3
Tax deeded	(1/)	-	-	-	(1/)
Other State	5	1.1	(1/)	-	5
Timber operating company	130	29.8	15	-	115
Timber holding company	10	2.3	-	-	10
Timber operating individual	39	9.0	2	-	37
Timber holding individual	4	0.9	(1/)	-	4
Range livestock farming company	-	-	-	-	-
Range livestock farming individual	16	3.7	5	-	11
Other farmers	3	0.7	2	-	1
Recreational prop- erty owners	4	0.9	1	-	3
Other classified owners	16	3.7	5	1	10
Unclassified	8	1.8	-	-	8
All types	436	100.0	56	15	365

1/ Less than 500 acres.

Table 6.- Privately owned commercial forest land, by size of ownership and by timber type, 1951

Size of ownership	Total	Timber type		
		Pine	Fir	Pine-- Douglas-fir-- Fir
<u>Acres</u>	<u>Thousand acres</u>	<u>Pct.</u>	<u>Thousand acres</u>	
1- 179	9	4.1	3	1 5
180- 379	5	2.3	2	- 3
380- 699	4	1.8	1	- 3
700- 1,299	2	0.9	-	- 2
1,300- 2,599	13	5.9	5	- 8
2,600- 4,999	10	4.5	4	- 6
5,000- 9,999	13	5.9	3	- 10
10,000-29,999	(1/)	-	(1/)	- (1/)
30,000-49,999	76	34.6	-	- 76
50,000 and over	88	40.0	11	- 77
All classified ownerships	220	100.0	29	1 190
Unclassified	10	-	1	- 9
Total acreage	230	-	30	1 199

1/ Less than 500 acres.

Table 7.- Commercial forest land, by type of ownership and
by age class of timber, 1951

Type of ownership	Total		Age class					
			Old growth	Old growth-young growth	Young growth-old growth	Large young growth	Small young growth	Non-stocked ^{1/}
	<u>Thousand acres</u>	<u>Pct.</u>	<u>Thousand acres</u>					
National Forest	197	45.2	2	102	46	11	14	22
Other Federal	4	0.9	(2/)	2	1	(2/)	(2/)	1
Tax dedeed	(2/)	-	-	(2/)	-	-	-	-
Other State	5	1.1	-	3	1	-	(2/)	1
Timber operating company	130	29.8	2	64	37	11	9	7
Timber holding company	10	2.3	-	9	1	(2/)	-	-
Timber operating individual	39	9.0	1	19	17	1	-	1
Timber holding individual	4	0.9	(2/)	1	1	1	1	-
Range livestock farming company	-	-	-	-	-	-	-	-
Range livestock farming individual	16	3.7	-	6	5	2	2	1
Other farmers	3	0.7	1	1	(2/)	1	(2/)	(2/)
Recreational property owners	4	0.9	-	1	1	-	1	1
Other classified owners	16	3.7	-	7	3	3	1	2
Unclassified	8	1.8	-	2	3	2	1	(2/)
All types	436	100.0	6	217	116	32	29	36

^{1/} Commercial forest land nonstocked with commercial conifers but covered primarily with hardwoods, grass, and chaparral.

^{2/} Less than 500 acres.

AGE CLASSES OF TIMBER STANDS ON COMMERCIAL FOREST LAND



Old growth



Young growth - old growth



Large young growth



Small young growth

Table 8.- Privately owned commercial forest land, by size of ownership
and by age class of timber, 1951

Size of ownership	Total	Pct.	Age class					
			Old growth	Old growth-young growth	Young growth-old growth	Large young growth	Small young growth	Non-stocked
<u>Acres</u>	<u>Thousand acres</u>		<u>Thousand acres</u>					
1- 179	9	4.1	1	3	2	1	1	1
180- 379	5	2.3	-	2	1	1	1	(1/)
380- 699	4	1.8	-	2	(1/)	1	1	(1/)
700- 1,299	2	0.9	-	1	1	-	-	-
1,300- 2,599	13	6.4	(1/)	5	3	2	1	2
2,600- 4,999	10	4.5	-	4	2	1	2	1
5,000- 9,999	13	5.9	-	8	3	(1/)	(1/)	2
10,000-29,999	(1/)	-	-	-	(1/)	-	-	-
30,000-49,999	76	34.5	1	52	21	1	(1/)	1
50,000 and over	88	39.6	2	31	31	12	8	4
All classified ownerships	220	100.0	4	108	64	19	14	11
Unclassified	10	-	-	2	4	2	1	1
Total acreage	230	-	4	110	68	21	15	12

1/ Less than 500 acres.

Table 9.- Commercial forest land, by age class of timber
and by density of stand, 1951

Age class	Total	Density of stand			
		Dense and semidense	Open	Very open	Non- stocked
----- <u>Thousand acres</u> -----					
Old growth	6	(1/)	1	5	-
Old growth--young growth	217	99	99	19	-
Young growth--old growth	116	69	33	14	-
Large young growth	32	19	6	7	-
Small young growth	29	9	15	5	-
Nonstocked	36	-	-	-	36
Total	436	196	154	50	36

1/ Less than 500 acres.

Table 10.- Commercial forest land, by timber type and
by site quality, 1951

Timber type	Total	Site quality		
		High	Medium	Low
----- <u>Thousand acres</u> -----				
Pine	56	-	47	9
Fir	15	5	10	-
Pine--Douglas-fir--Fir	365	25	286	54
All types	436	30	343	63

Table 11.- Commercial forest land area, by timber type, stand-size class,
degree of stocking, and ownership, 1931

Timber type and stand-size class ^{1/}	Degree of stocking ^{2/} and ownership														
	All areas			Well-stocked			Medium-stocked			Poorly stocked			Nonstocked		
	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private
----- Thousand acres -----															
Pine															
Old-growth saw timber	39	21	18	8	6	2	21	10	11	10	5	5	-	-	-
Young-growth saw timber	9	2	7	2	1	1	4	(1/)	4	3	1	2	-	-	-
Pole timber	2	(3/)	2	1	(1/)	1	1	-	1	(1/)	-	(1/)	-	-	-
Nonstocked	6	3	3	-	-	-	-	-	-	-	-	-	6	3	3
Total	56	26	30	11	7	4	26	10	16	13	6	7	6	3	3
Fir															
Old-growth saw timber	8	7	1	4	4	(1/)	3	3	-	1	-	1	-	-	-
Young-growth saw timber	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-
Pole timber	3	3	-	1	1	-	2	2	-	(1/)	(1/)	-	-	-	-
Nonstocked	3	3	-	-	-	-	-	-	-	-	-	-	3	3	-
Total	15	14	1	6	6	(1/)	5	5	-	1	(1/)	1	3	3	-
Pine--Douglas-fir--Fir															
Old-growth saw timber	292	129	163	156	66	90	109	49	60	27	14	13	-	-	-
Young-growth saw timber	22	8	14	16	6	10	2	(1/)	2	4	2	2	-	-	-
Pole timber	24	11	13	7	3	4	12	5	7	5	3	2	-	-	-
Nonstocked	27	18	9	-	-	-	-	-	-	-	-	-	27	18	9
Total	365	166	199	179	75	104	123	54	69	36	19	17	27	18	9
All types															
Old-growth saw timber	339	157	182	168	76	92	133	62	71	38	19	19	-	-	-
Young-growth saw timber	32	11	21	19	8	11	6	(1/)	6	7	3	4	-	-	-
Pole timber	29	14	15	9	4	5	15	7	8	5	3	2	-	-	-
Nonstocked	36	24	12	-	-	-	-	-	-	-	-	-	36	24	12
Total	436	206	230	196	88	108	154	69	85	50	25	25	36	24	12

^{1/} See relationship of stand-size classes to age classes, page 16.

^{2/} To obtain degree of stocking, Survey density classes were converted as follows: dense and semidense -- well stocked; open -- medium stocked; and very open -- poorly stocked.

^{3/} Less than 500 acres.

PROCEDURES

Area delineation

To determine the extent, location, and condition of all forest lands in Tehama County, aerial photographs were delineated on the basis of (1) present cover of vegetation, (2) suitability for growing timber crops, and (3) age class and density of timber stands. The minimum unit classified and mapped under the Federal Survey was forty acres. However, under a cooperative agreement with the State Division of Forestry, classification and mapping were extended to a 10-acre minimum on lands outside the national forest boundary.

The segregation of lands suitable for growing timber crops from other lands was a matter of some difficulty, particularly where commercial conifers were entirely lacking. If these nonstocked areas were located in a timber zone where commercial conifers normally grow, they were classified as commercial forest land. While this assumption may be true in most cases, as verified by visible and historical evidence, soil surveys now in progress in other areas of California have demonstrated that some nonstocked areas have soils too shallow to grow timber. Inasmuch as the same situation probably exists throughout this county, some of the nonstocked areas classified in this report as commercial and reserved commercial forest land must reside in the doubtful category until soil surveys provide a basis for final classification.

Transfer to base maps

After photo delineation was completed, Timber Stand Maps were prepared by transferring photo classifications to 7-1/2-minute quadrangle size base maps at a common scale of 2 inches to the mile. Kind and density of vegetation, age structure and density of coniferous timber stands, and other information pertinent to the forest resource were shown. As a final preparation for area measurement other related information such as political and economic subdivisions, ownership, and commercial timber type boundaries was marked along north-south transect lines spaced 2 miles apart. Because logging and fire have caused changes in the timber classification since the date of aerial photography, adjustments of age-density classes were made along these transect lines after a field examination. This was done so that class acreages when compiled would show conditions as of the inventory year.

Ownership determination

Information on land ownership in Tehama County was obtained from the county tax assessment rolls, and other official records of the County Assessor and Tax Collector, using a line sampling technique.^{1/}

^{1/} Details of the line sampling method used for estimating area and procedure for estimating number of owners are given in "A New Approach to Forest Ownership Surveys," by A. A. Hasel and Adon Poli, Land Economics, Vol. XXV, No. 1, Feb. 1949, pp. 1-10.

Ownership boundaries, taken from county plat maps, were marked along the transect lines drawn on the quadrangle base maps. The proportion of the total line traversing an ownership class was taken as the proportion of the total acreage in that particular class. This acreage was classified further by measuring the intercepts of the various classifications of vegetation and timber stands used in the Forest Survey.

Owners of properties traversed by the sample lines constituted the ownership sample. The property records of the county provided the address of the owners, and the acreage of each parcel of land in the sample. The acreage figures were used to classify private ownerships and land area by size. Each sample owner was mailed a questionnaire card by the State Division of Forestry. Answers on these cards provided information used to classify the sample ownerships as to type of ownership. Similar information about the land of nonrespondents was obtained by a field followup, in which key informants were questioned in local public offices and in the communities where the owners have their land.

Area measurement and compilation

To estimate areas, parallel lines spaced 2 miles apart were drawn mainly north and south (with a few east and west) on the quadrangle base maps. Acreage figures were then obtained by recording line intercept measurements of all pertinent subdivisions along each sample line transecting the quadrangles. These subdivisions included age, density, and type of timber stands, and type and size of ownership. The ratio of total line length to total area for the quadrangle provided the factor to convert line segments in inches to area in acres. These acreages were then totaled by county, and adjusted if necessary, to check with the 1940 Bureau of Census acreages by counties. Estimated acreage figures appearing in the tables were compiled and summarized by means of punch cards and card tabulating equipment.

Stand-size class determination

The national pattern established for the Forest Survey requires classification of commercial forest land into stand-size classes. To present California forest resource data in terms of stand-size classes, mapped age classes have been grouped as follows:

<u>Age class</u>	<u>Stand-size class</u>
Old growth)	
Old growth-young growth)	Old growth saw timber
Young growth-old growth)	
Large young growth	Young growth saw timber
Small young growth	Pole timber
Nonstocked	Nonstocked

The forest stands classified as saw timber by this grouping conform closely to the Forest Survey definitions. Areas of seedlings and saplings are not shown separately as these areas occurred in such small and widely scattered units that separate photo classification was not practicable. These areas were included with other stand-size classes, chiefly pole timber and nonstocked.

Site quality determination

Three broad site classes -- high, medium, and low -- have been used to express the relative capacity of commercial forest land to produce timber crops. One hundred eight separate field site determinations, well distributed over the three major timber types, were grouped into the three broad classes. For each type the number of site determinations in each site class was expressed as a percentage of all observations within the type. These percentages were then applied to the total area by type to provide estimates of relative site quality.

The relationship between the broad site quality classes and site class and site index ratings of commercial forest land is shown in the following table and explained in the appended footnotes.

Broad rating	All types except Douglas-fir		Douglas-fir types	
	Site class ^{1/}	Site index ^{2/}	Site class ^{3/}	Site index ^{4/}
High	IA	200	I	200
			II	170
	I	175	III	140
Medium	II	150		
	III	125	IV	110
Low	IV	100		
	V	75	V	80

^{1/} According to D. Dunning in Station Research Note No. 28, December 1, 1942, "A Site Classification for the Mixed-Conifer Selection Forests of the Sierra Nevada," California Forest and Range Experiment Station.

^{2/} The total height that the average dominant trees reach at 300 years of age.

^{3/} According to R. E. McArdle and W. H. Meyer in U. S. Department of Agriculture Technical Bulletin 201, October 1930, "The Yield of Douglas-fir in the Pacific Northwest."

^{4/} The total height that average dominant Douglas-fir trees reach at 100 years of age.

ACCURACY OF ESTIMATE

Estimates of acreages in the various classes of land as determined by Forest Survey procedures are subject to two general types of errors: (1) non-sampling errors in photo classification, mapping, tabulation, computation, and compilation, and (2) sampling errors which arise from taking a sample rather than making a complete inventory. Errors of the first type are kept to a minimum by frequent checking and close supervision of all field and office work. If these non-sampling errors are negligible or compensating, then the sampling errors provide measures of the reliability of the acreage estimates and can be computed by statistical methods. Magnitudes of the sampling errors depend on the intensity of the sample and the variability of the data.

For the principal classes of forest land of Tehama County, the sampling errors^{2/} are as follows:

<u>Class</u>	<u>Sampling error</u>	
	<u>Acres</u>	<u>Percent</u>
Forest land	16,536	1.2
Commercial forest land	15,696	3.6
Noncommercial forest land	22,608	2.4

Statistics of forest area by age class, type, and ownership classes presented in this report are subject to increasing sampling errors as the class acreages decrease. A partial range of area sampling errors applicable to areas in this report is shown below:

<u>Acres in class</u>	<u>Sampling error in percent</u>
10,000	21.0
20,000	14.5
40,000	10.5
100,000	6.5
200,000	4.5
500,000	3.0
1,000,000	2.0
2,000,000	1.5

^{2/} For one standard error; that is, the chances are two in three that the class acreages as determined by 100-percent measurement lie within the limits of the calculated acreages plus and minus the amounts shown.

DEFINITION OF TERMS

Area

Forest land area. Includes (a) lands which are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or exerting an influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which have not been developed for other use; (c) afforested areas; and (d) chaparral areas.

Commercial forest land area. Forest land which is (a) producing or capable of producing usable crops of wood (usually saw timber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land area. Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order which otherwise qualifies as commercial forest land and (b) incapable of yielding wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Chaparral land area. Lands supporting heavily branched dwarf trees or shrubs, usually evergreen, the crown cover of which normally covers more than 50 percent of the ground and whose primary value is watershed protection. The more common chaparral constituents are species of Quercus, Cercocarpus, Garrya, Ceanothus, Arctostaphylos, and Adenostoma. Types dominated by such shrubs as Artemisia, Opuntia, Purshia, Guttierrezia, or semidesert species are not commonly considered chaparral.

Nonforest land area. Land that does not qualify as forest land. Includes land which has never supported forest growth; land from which the forest has been removed to less than 10 percent stocking and has been developed for other use, such as grazing, agricultural, residential, or industrial; all land in thickly populated urban and suburban areas; and water classified as land by the Bureau of Census.

Timber stand classifications

Age classes of commercial conifer stands^{3/} on commercial forest land.

1. Old growth. Mature trees^{4/} compose more than 80 percent of the conifer canopy.

^{3/} Stands composed of the following species, singly or in combination: Ponderosa pine, Douglas-fir, Jeffrey pine, sugar pine, true firs (red and white), incense cedar, western white pine, mountain hemlock, and lodgepole pine.

^{4/} All trees that can be considered as having passed their optimum growth.

2. Old growth-young growth. Mature trees compose from 50 to 80 percent of the conifer canopy.
3. Young growth-old growth. Mature trees compose 20 to 50 percent of the conifer canopy.
4. Young growth. Mature trees compose less than 20 percent of the conifer canopy.
 - a. Large young growth. More than 20 percent of the immature trees are larger than 11 inches d.b.h.
 - b. Small young growth. Eighty percent or more of the immature trees are less than 11 inches d.b.h.

Stand-size classes of timber stands on commercial forest land.

1. Saw-timber stands. Defined as stands having a minimum net volume per acre of 5,000 board feet, International 1/4-inch rule, in saw-timber trees (11 inches d.b.h. and larger for all species).
 - a. Old-growth saw-timber stands. Saw-timber stands in which over 50 percent of the net board-foot volume is in old growth saw-timber trees.
 - b. Young-growth saw-timber stands. Saw-timber stands in which 50 percent or more of the net board-foot volume is in young growth saw-timber trees.
2. Pole-timber stands. Defined as stands failing to meet the saw-timber stand specification, but at least 10 percent stocked with pole-timber and larger trees and with at least half the minimum stocking in pole-timber trees (5.0 to 10.9 inches d.b.h.).
3. Seedling and sapling stands. Stands not qualifying as either saw-timber or pole-timber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling and sapling trees.
4. Nonstocked. Defined as areas of forest land not qualifying as saw-timber, pole-timber, or seedling and sapling stands.

Density classes of commercial conifer stands on commercial forest land.

1. Dense and semidense. Commercial conifers cover 50 percent or more of the ground space.
2. Open. Commercial conifers cover from 20 to 50 percent of the ground space.

3. Very open. Commercial conifers cover 5 to 20 percent of the ground space.
4. Nonstocked. Commercial conifers cover less than 5 percent of the ground space.

Timber type. An extensive area of commercial or withdrawn commercial forest land characterized by a predominant conifer species or group of conifer species. Other vegetation (such as hardwood and chaparral areas) and/or nonvegetation types (such as barren areas) may also occur in subordinate amounts within the same area.

Commercial timber types:

- a. Pine--Douglas-fir--Fir. Areas with mixtures of the commercial pines and either Douglas-fir or the true firs in which the pines, Douglas-fir, and true firs each comprise 20 percent or more of the commercial conifer cover.
- b. Pine. Areas with ponderosa, Jeffrey, or sugar pine comprising more than 80 percent of the commercial conifer cover or mixtures of these pines with lodgepole pine, western white pine, or mountain hemlock in which the aforementioned pines comprise 20 percent or more of the commercial conifer cover.
- c. Fir. Areas with true firs (white and California red) comprising more than 80 percent of the commercial conifer cover; or mixtures of the true firs and lodgepole pine, mountain hemlock, or western white pine, in which the true firs comprise 20 percent or more of the timber cover.

Other timber and vegetation types:

- a. Coniferous woodland. Areas with such trees as knobcone pine, digger pine, juniper, and scattered and scrub trees of other conifer species, covering more than 5 percent of the ground space and predominant over hardwoods that may partly compose the cover.
- b. Hardwoods (woodland). Areas with hardwood trees (oaks, madrone, etc.), covering more than 50 percent of the ground except where in mixture with commercial conifers or herbaceous vegetation.
- c. Woodland-grass. Areas with hardwood trees and herbaceous vegetation occurring in mixture--without commercial conifers--and the trees covering from 5 to 80 percent of the ground area and predominant over minor conifers^{5/} present in the cover.

^{5/} Minor conifer species are knobcone pine, digger pine, juniper, Pacific yew, and California torreyia.

d. Shrub and herb types consist of the following, where not in mixture with minor conifers or hardwood.

1. Chaparral. Areas with such shrubs as manzanita, ceanothus, scrub oaks, etc., covering more than 50 percent of the ground.
2. Grass. Areas with grasses and associated herbaceous vegetation covering more than 50 percent of the ground except where the type qualifies as woodland-grass.

Nonvegetation types:

- a. Barren. Bare ground, rocky areas, river beds, mine dredgings, and talus essentially devoid of vegetation.
- b. Cultivated, urban, and industrial. Areas that are under cultivation or are used for residential or industrial purposes.

Ownership classifications

National forest. Federal lands which, by executive order or statute, have been designated as national forests, purchase units, or experimental areas or have been placed under the administration of the Forest Service.

National park. Federal lands which have been designated as national parks, monuments, or recreational areas and are administered by the National Park Service.

Other Federal. All other lands owned by the Federal Government not classed as national forest or national park.

Tax deeded. Formerly privately owned land but now deeded to the State for nonpayment of taxes.

Other State. Lands in State ownership other than State forests, State parks, or tax deeded.

Timber operating company. A corporation actively engaged in commercial logging and sawing of timber as a major enterprise.

Timber holding company. A corporation holding timberland principally for future commercial timber operations. The timber may be held for the company's own future use or for sale to other operators.

Timber operating individual. A person whose major enterprise is commercial timber operations. This includes individuals logging timber, operating a large or small sawmill, or splitting timber commercially for sale.

Timber holding individual. A person holding timberland principally for future commercial timber operations. The timber may be held for his own future operations or for sale to other operators.

Range livestock farming company. A corporation engaged primarily in range livestock farming operations.

Range livestock farming individual. A person whose major enterprise is range livestock farming.

Other farmers. Persons or corporations that have farming as their major activity, but whose principal agricultural enterprise is not range livestock farming.

Recreational property owners. Persons or corporations holding land principally for recreational purposes.

Other classified owners. All other land owners whose classification is known but does not logically fit the classes listed above. Examples are owners of land held for residential purposes only, mining claims, and reservoir sites.

Unclassified. Land ownerships in urban, suburban, and industrial settlements that are too small to map and classify properly, and ownerships that for other reasons cannot be classified and placed in appropriate categories.